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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Andrew H. Stewart

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EXAMINER

PATEL, KANJIBHAI B

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,256

Applicant(s)

STEWART ET AL.

Examiner

Kanji Patel

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-30 is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Drawings filed on 8/2/01 have been approved by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6 and 8-19 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Fernandes (US 4,904,996 – IDS).

For claim 1, Fernandes discloses a device for monitoring a cable (in figures 1 and 2, 16 is a monitoring system), comprising;

an imaging device having a field of view (column 3, lines 4-6; video camera 56 in figure 2 is controlled by a mobile ground control station operator to rotate for azimuth and elevation control for a desired field of view; column 5, lines 14-24; column 6, lines 37-50);

a, target (15 in figure 2; column 2, lines 34-35), distinguishable within said field of view of said imaging device, associated with a cable (an obstruction 15 in figure 2 acts as a target; column 5 line 66 to column 6 line 2); and

a computer processor (column 3, lines 4-6; the microprocessor control system 100 in figure 4 acts as a computer processor) connected to said imaging device (56) for analyzing images of said target (15) produced by said imaging device (15) to determine a position of said cable (column 4, lines 34-40; column 6, lines 37-59; power transmission line provides a cable).

For claim 2, Fernandes discloses the device wherein said imaging device comprises a charge coupled device camera (column 4, lines 65-68; 56 in figure 2);

For claim 3, Fernandes discloses the device wherein said imaging device comprises (column 2, lines 23-25);

For claim 6, Fernandes discloses the device wherein said target comprises a portion of said cable (figure 1A).

For claim 8, Fernandes discloses the device wherein said computer processor comprises a frame grabber (column 5, lines 31-32; A/D acts as a frame grabber).

For claim 9, Fernandes discloses the device wherein said computer processor is electrically connected to said imaging device (in figure 4 microprocessor 100 is connected to video camera controls 116 and sensor controller 120).

For claim 10, Fernandes discloses the device wherein said computer processor is optically connected to said imaging device (116, 120 in figure 4 are used for imaging).

For claim 11, Fernandes discloses the device further comprising an illuminator mounted in proximity to said imaging device (column 5, lines 25-31; lighting flash detectors 74 in figure 2 provide illumination).

For claim 12, Fernandes discloses the device wherein said illuminator comprises a laser diode (column 3, lines 40-45).

For claim 13, Fernandes discloses the device wherein said illuminator comprises a plurality of light emitting diodes (column 5, lines 25-31).

For claim 14, Fernandes discloses the device further comprising a data storage device connected to said computer processor for storing said position (column 6, lines 51-59).

For claim 15, Fernandes discloses the device further comprising a communications transmitter connected to said data storage device for sending said data to a remote location (column 4, lines 34-40; column 5, lines 1-10).

For claim 16, Fernandes discloses the device further comprising a photovoltaic power source electrically connected to said imaging device (column 5, lines 57-65).

For claim 17, Fernandes discloses the device further comprising a nitrogen-pressurized housing that contains said imaging device and said computer processor (column 6, lines 60-64).

For claim 18, Fernandes discloses the device wherein said imaging device and said computer processor comprise a smart vision system (figure 4 can read on smart vision system; column 6, lines 51-59).

For claim 19, Fernandes discloses device for monitoring a cable (title; figures 1-2), comprising:

a sealed housing (46 in figure 2 provides an aluminum housing) having a viewing port (column 5, lines 25-31; transparent windows 60 in figure 2 provides a viewing port; see column 5, lines 14-24);

a video camera (column 3, lines 4-6; 56 in figure 2 is a video camera mounted in module 46) mounted within said sealed housing (46 in figure 2 provides a an aluminum housing) and having a field of view (video camera is controlled by a ground control station operator to rotate for azimuth and elevation control for the desired field of view) through said viewing port; column 6, lines 37-50);

a target (15 in figure 2; column 2, lines 34-35), distinguishable within said field of view of said video camera, mounted on a cable having a position cable (an obstruction 15 in figure 2 reads on a target; column 5 line 66 to column 6 line 2);

a computer processor (column 3, lines 4-6) the microprocessor control system 100 in figure 4 acts as a computer processor) mounted within said housing and connected to said video camera (56) for analyzing video images of said target produced by said video camera to determine a change in said position (column 4, lines 34-40; column 6, lines 37-59);

a data storage device (column 3, lines 4-6; memory provides a data storage) mounted within said housing and electrically connected to said computer processor (column 3, lines 4-6; 100 in figure 4) for storing said position determined by said computer processor and a time value associated with said position (column 6, lines 51-59);

a communication transmitter (column 3, lines 9-12) electrically connected to said data storage device (column 3, lines 4-6) for transmitting said position and said time value to a remote location (in figure 4 102 and 134 provides communication link).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandes (US 4,904,996-- IDS) as applied to claims 1-3, 6 and 8-19 above and further in view of Brown (US 6,229,451 B1).

For claim 4, Fernandes does not clearly disclose a target having reflective surface. However, Brown discloses the use of reflector 5 as shown in figures 1A-1B as a target in measuring the actual position of an overhead power transmission line (see

Art Unit: 2625

also column 4, lines 35-42). It would have been obvious to a person skilled in the art to use a target having reflective surface as shown by Brown into the power line monitoring system of Fernandes because doing so will make the system of Fernandes to allow maximum safe transmission of power through the line regardless of the accuracy of information about the many factors that limit such power transmission, and to assist in making more accurate mathematical models of the actual forces affecting a power transmission line as shown by brown in column 3 line 62 to column 4 line 4.

For claim 5, see the rejection of claim 4 above. Surface of the reflector 5 may provide a use of retro-reflective tape inherently.

For claim 7, see the rejection of claim 4 above. Reflector used as a target is self-illuminating by its self (reflector target is inherently self illuminated).

Allowable Subject Matter

4. Claims 20-30 are allowed.

For independent claim 20, the prior art on record fails to teach or suggest, singly or in combination for monitoring a cable, comprising among other things, correlating said first image with said second image to determine a position of said portion of said cable within said second image and reporting said position.

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McGugin et al. (US 6,240,783 B1) discloses a bridge monitoring system.

Art Unit: 2625

Miyahara et al. (US 4,671,654) discloses an automatic surveying apparatus using a laser beam.

Seppa (US 5,918,288) discloses a transmission line load cell protection system.

Seppa (US 5,517,864) discloses a power transmission line tension monitoring system.


Hayes et al. (US 6,205,867 B1) discloses a power line sag monitor.

Contact information

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Kanji Patel** whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 6:30 p.m. Friday off. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, **Mehta , Bhavesh**, can be reached on (703) 308-5246.

Any inquiry of general nature or relating to the status of this application should be directed to the **Group receptionist** whose telephone number is (703) 305-3800. The

Fax number for this group is (703) 872-9306.



Kanji Patel
Patent Examiner
Group Art Unit 2625
June 14, 2004